

REMARKS

INTRODUCTORY COMMENTS:

In the Office Action under reply, the Examiner rejected all claims as follows:

(1) Claims 1, 6-17, 19-21, 26, 32-38, 40-45, 47, 48, 51-53, and 59-63 are rejected under 35 U.S.C. §102(e) or §103(a) as anticipated by or obvious over U.S. Patent Application Publication No. 2002/0094582 to Williams et al.;

(2) Claims 2-15, 18, 22, 39, 46, and 55 are rejected under 35 U.S.C. §103(a) as obvious over Williams et al.; and

(3) Claims 27-31, 54, 56-58, and 64-70 are rejected under 35 U.S.C. §103(a) as obvious over Williams et al. in view of U.S. Patent No. 5,808,300 to Caprioli; and

(4) Claims 20-31, 33-35, 49, and 50 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 145-153 and 156-159 of copending U.S. Patent Application Serial No. 10/066,546.

The rejections are addressed in part by the above amendments to the claims and are otherwise traversed for reasons that will be discussed in detail below.

THE ABOVE AMENDMENTS:

Independent claims 1, 47, 64, and 67 have been amended to indicate that the cellular sample recited in the claims has *a contiguous surface*. In addition, these claims have been reworded to set forth that the fluid droplets are ejected from the reservoir and deposited on at least one *designated site* on the contiguous surface. Support for these claims may be found, on page 18, lines 19-20, in FIG. 1, and accompanying text to FIG. 1 on page 28, lines 5-21.

Dependent claims 26, 27, and 29 have been amended to render their terminology consistent with respect to the claim terminology of claim 1 from which they depend. In addition, the term "cell sample" in the claims has been changed to "cellular sample" to ensure consistency of usage. As discussed on page 10, lines 6-9, the terms "cell" and "cellular" are generally interchangeably used. These amendments are clerical in nature and do not introduce new matter.

Thus, no new matter has been introduced by way of any of these amendments and entry thereof is proper.

STATUS OF THE CLAIMS

Claims 1-70 are pending. Claims 1, 26, 27, 29, 47, 64, and 67 are amended. Claims 2-25, 28, 30-46, 48-63, 65, 66, and 68-70 are unchanged.

THE 35 U.S.C. §102(E) AND 103(A) REJECTION OVER WILLIAMS ET AL.:

Claims 1, 6-17, 19-21, 26, 32-38, 40-45, 47, 48, 51-53, and 59-63 are rejected under 35 U.S.C. §102(e) as anticipated by or obvious over Williams et al. In support of this rejection, the Examiner states that Williams et al. describes the use of focused acoustic energy to eject droplets of fluid. In addition, the Examiner contends that Williams et al. describes assays for studying the interaction of a selected molecule with a cell surface, e.g., the interaction between a ligand and a binding partner on a cell surface. Furthermore, the Examiner states Williams et al. describes the deposition of a cell-containing fluid on a target array. While admitting that Williams et al. does not specifically disclose the deposition of a fluid on a cellular sample, the Examiner nevertheless states that the deposition of a cell-containing fluid onto a target containing a biomolecule is equivalent to the deposition of a fluid containing a biomolecule onto a cellular target.

Similarly, claims 2-15, 18, 22, 39, 46, and 55 are rejected under 35 U.S.C. §103(a) as obvious over Williams et al. In support of this rejection, the Examiner states that the elements recited in these dependent claims are either well known in the art or derivable through routine experimentation. For example, while recognizing that Williams et al. does not disclose that cells may be obtained from cultures and tissues, the Examiner states that one of ordinary skill in the art would view cultures or tissues as obvious sources of cells for cellular assays.

Thus, it appears that the Examiner's position can be summed up as follows. First, Williams et al. generally describes an assay that involves the use of acoustic ejection to allow a cell to contact and interact with a selected molecule. Second, any contact between the cell the selected molecule is sufficient to perform the assay regardless whether the cell or the selected molecule is contained in an acoustically ejected droplet. Third, additional elements cited in the dependent claims do not serve to distinguish the subject matter of the claims from the disclosure of Williams et al.

As an initial matter, applicants disagree with the Examiner's characterization of Williams et al. for a number of reasons. In general, Williams et al. contains very little disclosure relating to "cells." In addition, the scant disclosure relating to "cells" is limited to their inclusion in a source fluid. *See, e.g.*, paragraphs [0059] and [0060]. That is, William et al. merely discloses

that droplets of a cell-containing fluid may be acoustically ejected toward a target. There is simply no disclosure relating to the deposition of a fluid on a surface of a cellular sample.

In addition, an anticipatory reference must disclose each and every element of the claim. *See In re Spada*, 15 USPQ2d 1655 (Fed. Cir. 1990). Unless there is "identity of invention," such that all claim elements are disclosed in a single reference, there can be no anticipation under 35 U.S.C. §102. Because, as discussed, above, Williams et al. contains no disclosure relating to the deposition of a fluid on a surface of a cellular sample, the reference does not anticipate the pending claims.

Additional elements serve to distinguish the subject matter of the claims from the disclosure of Williams et al. For example, all pending claims of the subject application involve the ejection of a droplet of fluid toward a (1) ***designated site on*** (2) ***a contiguous surface of*** (3) ***a cellular sample***. Applicants submit that none of these enumerated elements are disclosed in or suggested by Williams et al. As discussed in the specification on page 22, lines 15-25, these elements are useful for performing analytical functions such as surface imaging and characterization of site-specific surface properties. Williams et al. neither discloses nor suggests these analytical functions.

It is well settled that "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." MPEP §2143.03. In this instance, the Examiner has misinterpreted the claims by failing to consider the "***designated site***" element set forth in the claims. This element indicates that subject matter of the pending claims does not, as the Examiner appears to indicate, merely involve employing focused acoustic energy to establish contact between a cell surface and a selected molecule. Instead, the ejected droplet must be deposited on at least one ***designated site***. Applicants submit that the ***location specificity*** set forth in the pending claims for the placement of an ejected droplet is neither disclosed nor suggested in Williams et al.

In addition, the pending claims set forth that the sample surface for receiving the ejected droplet is ***contiguous***. In contrast, Williams et al. does not disclose a contiguous sample surface. Instead, as indicated in the Abstract, Williams et al. generally describes the transfer of fluids from an array of source sites to an array of target sites. As indicated in paragraph [0004], the target, like a multiwell plate fluid source, "may comprise thousands of loci that need to be accessed in a rapid, contamination-free manner." By emphasizing the deposition of different

fluids at different locations, e.g., wells of well plates, and the need to prevent contamination, e.g., preventing the fluids from mixing between wells, Williams et al. teaches a method that uses a plurality of *discrete* target surfaces. That is, Williams et al. teaches away from the use of any contiguous sample surface, including a contiguous *cellular* sample surface.

Since Williams et al. fails to disclose or suggest subject matter involving the ejection of a droplet of fluid toward a *designated site on a contiguous surface of a cellular sample*, reconsideration and withdrawal of the rejections over Williams et al. is warranted and respectfully requested.

THE 35 U.S.C. §103(A) REJECTION OVER WILLIAMS ET AL. IN VIEW OF CAPRIOLI :

Claims 27-31, 54, 56-58, and 64-70 are rejected under 35 U.S.C. §103(a) as obvious over Williams et al. in view of Caprioli. In issuing this rejection, the Examiner relies on Williams et al. as the primary reference and states that Williams et al. teaches the use of "scanning analyzer or the like" for analyzing the target after a source fluid has been deposited thereon. While the Examiner contends that no particular type of analyzer is specified in Williams et al., the Examiner nevertheless states that Caprioli provides the missing teaching relating to the use of laser scanning to release and ionize molecules from the sample surface for analysis in a mass spectrometer.

In response, applicants point out that two basic criteria must be met to establish *prima facie* obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable likelihood of success, viewed in the light of the prior art. *Brown & Williamson Tobacco Corp. v. Phillip Morris Inc.* 229 F.3d 1120, 56 USPQ2d 1456, 1459 (2000) citing *In re Dow Chem.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988).

As an initial matter, applicants further submit that the Examiner has not met the first criterion of the test for obviousness. That is, the Examiner has not provided any reason as to why the cited references should be read together. Although both Caprioli and Williams et al. mention mass spectrometry, they generally describe incompatible techniques. Caprioli is directed to a surface-based mass-spectrometry technique that requires two distinct events to take place for sample introduction. That is, Caprioli first requires the deposition of mass-spectrometry matrix

material on a sample. Then, sufficient energy is applied to ionize and release analyte molecules from the sample surface. In contrast, the mass-spectrometry technique described in Williams et al. involves only a single-step. That is, acoustic radiation is used to eject ionized analyte-containing droplets directly into a mass spectrometer. These incompatible teachings indicate that the references may not be properly read together.

In addition, as discussed above, the Examiner has relied on a faulty reading of the primary reference, i.e., Williams et al. With the proper reading, it should be evident that Williams et al. does not disclose all elements of the independent claims and is general directed to the ejection of fluids from an array of source sites to a *plurality of discrete target surfaces*. If Williams et al. were to be read together with Caprioli in the manner suggested by the Examiner, one would use a laser to release and ionize molecules from a *plurality of discrete target surfaces* rather than from a *contiguous sample surface*. That is, it is unreasonable to expect that the subject matter of the pending claims would be successfully made by reading Williams et al. with Caprioli. Accordingly, the second criterion of the test for obviousness has not been met.

Thus, all pending claims are nonobvious over Williams et al. in view of Caprioli and withdrawal of this rejection is requested.

THE PROVISIONAL DOUBLE PATENTING REJECTION:

Claims 20-31, 33-35, 49, and 50 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claim 145-153 and 156-159 of commonly owned, copending U.S. Patent Application Serial No. 10/066,546 a parent of the subject application. While admitting that the rejected claims are not identical to the cited claims, the Examiner states that these claims are not patentably distinct from each other.

While not wishing to acquiesce in the Examiner's provisional rejection, applicants are willing to disclaim the term of any patent issuing from this application that extends beyond the term of any patent issuing from U.S. Patent Application Serial No. 10/066,546, in order to expedite prosecution.. Accordingly, applicants are willing to submit a signed terminal disclaimer to overcome the obviousness-type double patenting rejection when notified that the pending claims are otherwise allowable. A copy of an unsigned terminal disclaimer is submitted herewith for the Examiner's review.

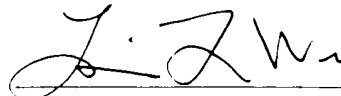
CONCLUSION

For all of the above reasons, it is submitted that the pending claims define an invention that is patentable over the art. As the application should now be in condition for allowance, a prompt indication to that effect would be appreciated.

If the Examiner has any questions concerning this communication, he is welcome to contact the undersigned attorney at (650) 330-0900.

Respectfully submitted,

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